



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,007	11/13/2003	Hideki Ohmae	2003-1658	6532
513	7590	11/18/2004	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.				NEGRON, ISMAEL
2033 K STREET N. W.				
SUITE 800				
WASHINGTON, DC 20006-1021				2875
ART UNIT				
PAPER NUMBER				

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/706,007	OHMAE ET AL.
	Examiner	Art Unit
	Ismael Negron	2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 13 November 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-12 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,2,4-7,10 and 11 is/are rejected.
 7) Claim(s) 3,8,9 and 12 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 13 November 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>20031113</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Title

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Sequential Color Display Device Including Light Shading Means.**

Abstract

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

2. The abstract of the disclosure is objected to because it fails to concisely state the subject matter of the invention. Correction is required. See MPEP § 608.01(b).

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “248” has been used to designate both “*rotation controller*” (paragraph 0222, line 3) and “*color wheel*” (paragraph 0227, line 5).

The applicant is advised that the reference characters must be properly applied, with no single reference character being used for two different parts or for a given part and a modification of such part. See MPEP §608.01(g).

Applicant is further advised that this action only exemplifies the objections to the drawings, applicant’s cooperation is requested in correcting all the occurrences of the cited, or any other errors of which applicant may become aware in the specification.

Art Unit: 2875

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 3 is objected to because of the following informalities: it recites the limitation "*the light passing part*" in line 2. There is insufficient antecedent basis for this limitation in the claim.

The cited lack of antecedent instances do not amount to indefiniteness under 35 U.S.C. 112, second paragraph, however, appropriate correction is required to place the claims in proper form for allowance.

The Examiner suggests amending line 2 of the objected claim to read "the size of the a light passing part of the shading means varies according to a".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "*the condensed spot*" in lines 14 and 15. There is insufficient antecedent basis for this limitation in the claim. For Prior Art rejections the applicant is advised that the Examiner presumed such "condensed spot" to be a desired image.

Claims 2-12 are rejected for their dependency on rejected claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 2, 4-7, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over HUANG et al. (U.S. Pat. 5,467,146) and TOMITA (U.S. Pat. 5,379,083).

HUANG et al. discloses an illumination device having:

- **a light source (as recited in Claim 1)**, Figure 2, reference number 16;
- **the light source being a white light source (as recited in Claim 1)**, column 3, lines 45;
- **condensing means (as recited in Claim 1)**, Figure 2, reference number 23;
- **the condensing means being for condensing light emitted from the light source (as recited in Claim 1)**, as seen in Figure 2;
- **color selection means (as recited in Claim 1)**, Figure 2, reference number 24;
- **the color selection means being for selectively passing through light of each color band of the light which has been condensed by the condensing means (as recited in Claim 1)**, column 3, lines 35-41;
- **the color selection means passing colored light in a predetermined order (as recited in Claim 1)**, column 3, lines 35-41;
- **the color selection means having a rotating a color wheel (as recited in Claim 1)**, column 3, line 35-44;
- **the color wheel including a plurality of color filters (as recited in Claim 1)**, column 3, lines 35-41;

- **the color filters being placed in the form of disc (as recited in Claim 1), column 3, lines 35-41;**
- **the color filters having respective colors (as recited in Claim 1), column 3, lines 35-41;**
- **illumination means (as recited in Claim 1), Figure 2, reference number 25;**
- **the illumination means being for condensing the light which has passed through the color selection means (as recited in Claim 1), as seen in Figure 2;**
- **a spatial light modulator (as recited in Claim 1), Figure 2, reference number 15;**
- **the spatial light modulator (SLM) being for modulating the light incident from the illumination means (as recited in Claim 1), column 3, lines 21-34;**
- **projection means (as recited in Claim 1), Figure 2, reference number 29;**
- **the projection means being for projecting the light modulated by the spatial light modulator onto a screen (as recited in Claim 1), column 4, lines 19-22;**
- **shading means (as recited in Claim 1), Figure 2, reference number 26;**

- **the shading means being for shading part of the light (as recited in Claim 1)**, column 4, lines 58-64;
- **light elimination means (as recited in Claim 4)**, Figure 2, reference number 21;
- **the elimination means being for partially eliminating light of a specific wavelength band (as recited in Claim 4)**, column 3, lines 49-51;
- **the shading means being placed on an emission side of the color selection means (as recited in Claim 5)**, as seen in Figure 2;
- **the light source being a xenon lamp**, column 3, lines 47 and 48;
- **a plane that is orthogonal to an optical axis of the shading means (as recited in Claim 10)**, inherent;
- **the plane being approximately circular in cross section (as recite in Claim 10)**, inherent; and
- **the shading means is approximately columnar (as recited in Claim 11)**, as seen in Figure 2.

HUANG et al. discloses all the limitations of the claims, except:

- the shading means shading a part of light corresponding to an area in excess of the desired image (as recited in Claim 1);
- the shading means being a diaphragm (as recited in Claim 2);

- the diaphragm having an opening of a predetermined size (as recited in Claim 2);
- a width of the opening of the diaphragm being set to be equivalent to or smaller than a diameter of a desired image (as recited in Claim 2);
- the shading means is placed at a 5 mm or smaller air gap apart from the color selection means (as recited in Claim 6); and
- the light source is an extra-high pressure mercury lamp (as recited in Claim 7).

TOMITA discloses an illumination device having :

- **a light source (as recited in Claim 1)**, Figure 1a, reference number 11;
- **condensing means (as recited in Claim 1)**, Figure 1a, reference number 12;
- **the condensing means being for condensing light emitted from the light source (as recited in Claim 1)**, as seen in Figure 1a;
- **illumination means (as recited in Claim 1)**, Figure 1a, reference number 25;
- the illumination means being for condensing the light which has passed through the color selection means (as recited in Claim 1), as seen in Figure 2;

- **a spatial light modulator (as recited in Claim 1), Figure 1a, reference number 14;**
- **the spatial light modulator (SLM) being for modulating the light incident from the illumination means (as recited in Claim 1), as seen in Figure 1a;**
- **projection means (as recited in Claim 1), Figure 1a, reference number 17;**
- **the projection means being for projecting the light modulated by the spatial light modulator onto a screen (as recited in Claim 1), as seen in Figure 1a;**
- **shading means (as recited in Claim 1), Figure 1a, reference number 16;**
- **the shading means being placed upstream from the SPL, as seen in Figure 2;**
- **the shading means shading a part of light corresponding to an area in excess of the desired image (as recited in Claim 1);**
- **the shading means being a diaphragm (as recited in Claim 2), as evidenced by Figure 2;**
- **the diaphragm having an opening of a predetermined size (as recited in Claim 2), inherent; and**

- **a width of the opening of the diaphragm being set to be equivalent to or smaller than a diameter of a desired image (as recited in Claim 2), inherent.**

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to include the adjustable aperture shading means of TOMITA in the illumination device of HUANG et al., to adjust the size and brightness of the projected image, as per the teachings of TOMITA.

Regarding the shading means being placed at a 5 mm or smaller air gap apart from the color selection means (as recited in Claim 6), it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to position the shading means of TOMITA at the claimed distance from the color selection means of HUANG et al., since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

Regarding the light source being an extra-high pressure mercury lamp, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use the claimed mercury lamp instead of the xenon lamp of HUANG et al. since the Examiner takes Official Notice of the equivalence of extra-high pressure mercury lamps and xenon lamps for their use in the illumination art, specifically for projection display devices. In addition, applicant's statement asserting the equivalency of xenon lamps, a metal halide lamps, and an extra-high pressure mercury lamps for

the particular application feature by the claimed invention (see specification as filed paragraphs 0010, 0168 and 0285).

Allowable Subject Matter

8. Claims 3, 8, 9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

Applicant teaches a projection display device including a white light source, first light condensing means, color selection means, second light condensing means, a spatial light modulator (SLM) and projecting means. The first condensing means include an ellipsoidal mirror for directing light from the light source toward the color selection means. The second condensing means direct light passed by the color selection means to illuminate the SLM. Light from the SLM is projected by the projecting means onto a screen. The device also includes light shading means having a light shading part which varies in size according to the wavelength of the light passed by the color selection means; or light shading means being approximately conical.

No prior art was found teaching individually, or suggesting in combination, all of the features of the applicants' invention, specifically an ellipsoidal mirror in combination with the claimed projection display device, or such device having approximately conical

light shading means, or a light shading part which varies in size according to the wavelength of the light passed by the color selection means.

Relevant Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Graham (U.S. Pat. 3,603,722), **Janssen** (U.S. Pat. 5,410,370), **Yang** (U.S. Pat. 5,541,679), **Edlinger et al.** (U.S. Pat. 5,868,482), **Hewlett et al.** (U.S. Pat. 6,220,730), **Lee** (U.S. Pat. 6,520,644) and **Miyawaki** (U.S. Pat. 6,683,657) disclose projection display devices including spatial light modulators and means to mask a portion of the projected beam.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negron whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached on (571) 272-2378. The facsimile machine number for the Art Group is (703) 872-9306.

Art Unit: 2875

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications maybe obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.



JOHN ANTHONY WARD
PRIMARY EXAMINER



Inr

November 9, 2004